



PG-PS 10S

Rev 4/98

A. Product Name

- PG-PS 10S

B. Catalog Number

- 210866

C. Intended Use

- **PG-PS 10S** is used in various animal models for induction of acute inflammatory responses which can evolve into a remittent, chronic, inflammatory response. Experimental chronic diseases induced by PG-PS in rats include chronic, erosive, remittent arthritis, granulomatous enterocolitis (resembling Crohn's disease), granulomatous hepatitis, intestinal hemorrhage, carditis and vasculitis. PG-PS induces animal responses which are representative of naturally caused inflammatory disorders. PG-PS 10S is used in both the intraperitoneal model for chronic arthritis and the intramural model for gastrointestinal inflammation. These applications also include evaluations and studies of anti-inflammatory drugs and therapies. One such model, the arthritic model in rats, is described below.

D. Product Description

- **PG-PS 10S** consists of purified peptidoglycan-polysaccharide polymers which are isolated from the sonicated cell wall of *Streptococcus pyogenes*, Group A, D58 strain. The peptidoglycan is the primary immunogenic moiety. The polysaccharide, when bound to this peptidoglycan moiety, allows for the chronic inflammation seen in animal models by protecting this moiety from degradation. The PG-PS 10S is supplied as a white, opalescent liquid suspension in sterile 0.85% saline. The rhamnose concentration of the product is 3 to 6 mg/ml and the MW range of the product is 5×10^6 to 5×10^8 daltons.
- **PG-PS 10S** is assayed in our laboratories using the rat model described below.

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E. Precautions

- The PG-PS 10S material must be stored and handled in an aseptic manner to avoid product contamination. Such contamination may affect animal model results.
- **For Research Use Only.** Not for use in diagnostic procedures.

F. Storage

- 2 - 8°C
- Discard any reagent which has become obviously contaminated or discolored.

G. INSTRUCTIONS FOR USE - Procedure for Arthritic Rat Model

Intraperitoneal Injection

Materials Provided	PG-PS 10S, 3 - 6 mg rhamnose/ml
Materials Required	Lewis Strain Rats, female, 150 - 200 gm each
	Sterile 0.85% saline
	Balance
	Vortexer
	Caliper
	1 ml syringes
	23 gauge needles

1. Randomly divide the rats into control and assay groups as required for the model. Label each group of rats appropriately. Control groups are defined as those rats receiving saline (negative control), and those rats receiving PG-PS 10S (positive control) with no intervention or treatment such as anti-inflammatory drugs. Assay groups are defined as rats receiving PG-PS 10S with intervention.
2. Weigh each rat in each group and determine the average body weight of each group. This average must be between 150 - 200 gm.
3. Measure each rat's ankle (maximal lateral) individually with a caliper to determine the baseline ankle measurement. Measure both left and right ankles. Each ankle should be measured 3 times and averaged.

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4. Vortex the PG-PS 10S for 30 seconds to thoroughly mix the material. Suspensions which appear to no longer be smooth or uniform (aggregated suspension) should be sonicated at low energy levels for 10-20 seconds with a **probe** type sonicator prior to injection.
5. Rats in the assay and positive control groups are injected with a total of 15 μgm of rhamnase/gm average body weight (calculated in Step # 2 above). The injection must be prepared aseptically to avoid contamination. Calculate the volume of reagent to inject per rat.

Example: average body weight of rats = 173 gm
Rhamnase concentration of PG-PS 10S = 4.9 mg/ml
 $(15 \mu\text{gm} \times 173 \text{ gm}) \div (4.9 \text{ mg} \times 1000) = 0.5 \text{ ml PG-PS to inject}$

6. Anesthetize each rat in the assay and positive control groups.
7. Inject each rat (typically using a 1 ml syringe with a 23 gauge needle) with the volume calculated in Step # 5 above. Administer the injection as an intraperitoneal (IP) injection in the lower left quadrant of the abdomen, taking care in the placement of the needle to avoid injecting the PG-PS 10S into either the stomach or caecum.
8. Repeat steps # 6 and # 7 above for the negative control group of rats, except substitute sterile 0.85% saline for PG-PS 10S reagent.
9. Monitor the response for each rat group every day for the first six days post injection, then at least every three days for 24 days.
10. A reading of the response consists of 3 measurements with a caliper per ankle as originally measured in Step # 3 above. Each group of rat ankle measurements are averaged and recorded as one data point to produce a graphical representation of the data.

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H. Limitations of the Procedure

- Certain animals may not respond to the PG-PS 10S injection and are termed non-responders. This is typically due to the placement of the 10S material, and is not reflective of the quality of the product. Typically, less than 20% should be non-responders (in the positive control group) to consider the placement technique valid. Remove non-responders from the protocol after the initial 6 days post-injection and do not include this data in calculating averages or percent response.

I. Expected Values

- Both an acute and chronic response must be evident in the PG-PS positive control group of rats. An acute response consists of a sharp increase in ankle measurements, typically 20% above baseline measurements. This rise reaches a peak in 3 - 5 days and is followed by a decline in the measurements on subsequent days. A chronic response should manifest around 12 - 14 days post injection and will be seen as a slow increase in the ankle measurements. Again, this is typically seen as 20% over baseline measurements. The chronic response is remittent and erosive, and should persist for the remainder of the experimental period.
- No response should be observed in the negative (saline) control group of rats

J. Related Literature List

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